

# Exploring the Impact of Self-Service Technologies on Retail Shoppers

## Introduction

Self-Service Technologies (SSTs) are those interfaces that allow customers to experience service without the directly dealing with service employees (Meuter et al., 2000). SSTs have some advantages and disadvantages for both consumers and service providers across a wide range of services (Meuter et al., 2000; Selnes and Hansen, 2001; Lee and Allaway, 2002; Salomann et al., 2006). This study focuses on the retail industry because application of SSTs in the retail industry is not always well received by the consumers (Cho and Fiorito, 2010). The self-service idea in the retail industry is still in its early stages among the UK consumers (Arnfield, 2014). There are two types of self-services: machine assisted services (on-site) and electronic services (off-site) (Fitzsimmons, 2003; Lee and Cho, 2013). In the retail industry, the typical example of machine assisted services are self-checkout machines (SCMs), and of electronic-services (e-services) are online shopping. In 2008, SCMs were first introduced in the UK by the one of the major supermarkets aiming to make the customer checkout experience more efficient (Sharp, 2015). Market research of 1,107 UK adults conducted in March 2014 by Viewbank found that the great majority of UK shoppers use SCMs at supermarkets, but 10 percent still claim that they had never used them, and nearly 50% shoppers state that they need help when using SCMs (Arnfield, 2014). Although online grocery shopping was first introduced in 1996 by one of the major supermarket in the UK (Kivilahti, 2016), the usage of online shopping is less common than SCMs. More than half of UK consumers (55%) do not shop online for groceries, and only 10% claim they always do their grocery shopping online, a further 12% state that they do this often (<http://www.mintel.com/press-centre/retail-press-centre/29-of-uk-online-grocery-shoppers-are-shopping-for-groceries-more-online-now-than-a-year-ago>, 2016). Clearly, SSTs in the UK retail industry do not seem as popular as staffed checkouts. Hence, this paper investigates the effect of SSTs on perceive store service quality, customer satisfaction and loyalty in UK supermarkets.

## Literature review

Recent research in the field has focused on identifying: the characteristics of SSTs which encourage customers to adopt them (Collier and Kimes, 2012; Lee and Allaway, 2002; Curran and Meuter, 2005; 2007; Dabholkar, 1996; Weijters et al., 2007); customer demographics and psychographics which divide users and non-users of SSTs (Dabholkar and Bagozzi, 2002; Meuter et al., 2003; Meuter et al., 2005; Walker and Johnson, 2006; Ding et al., 2007; Nilsson, 2007; Oyedele and Simpson, 2007; Simon and Usunier, 2007); past usage of SSTs which may affect customer choices of future usage (Wang et al. 2012; 2013); the drivers of continuous SST use, and situational factors which divide users and non SSTs users (Dabholkar and Bagozzi, 2002; Wang et al., 2013).

Compared to the number of studies which focus on identifying factors which influence SSTs adoption, fewer studies concentrate on the outcomes of using SSTs. Research so far identifies that the retail industry is adopting SSTs to enhance their service quality, because, by providing SSTs, shoppers can pay without waiting in a long queues for staff checkouts (Cho and Fiorito, 2010). Moreover, quality of SSTs has been identified to influence customer satisfaction and loyalty to the store. Provision of SSTs will not automatically lead to store loyalty: SSTs will lead to store loyalty only when shoppers' perceive quality of service from SSTs (Lee, 2015). Customers who are satisfied with SSTs are also satisfied with the store, which in turn has a positive impact on customers' patronage intentions toward a store (Marzocchi and Zammit, 2006). Similarly, Wang (2012) found that shoppers who are

satisfied with the quality of SSTs tend to stay with their current service provider. Perceived quality of SSTs is acknowledged to positively influence customer overall satisfaction with the store (Fernandes and Pedroso, 2017). Because SST quality could enhance customer's shopping experience, it will ultimately result in customer loyalty to the store (Orel and Kara, 2014). Some authors declare that quality of SSTs will have an impact on repurchase and patronage intention (Marzocchi and Zammit, 2006; Lee et al., 2009; Lee and Yang, 2013; Fernandes and Pedroso, 2017). Hence, perceived quality of SSTs will influence perceived store service quality, customer satisfaction with and loyalty to the store.

Most of past research on SSTs in the retail sector typically includes either SCMs (Dabholkar et al., 2003; Curran and Meuter, 2005; Wang et al., 2012; Lee et al., 2013; Orel and Kara, 2014; Demoulin and Djelassi, 2016; Fernandes and Pedrose, 2017), or online shopping (Childers et al., 2001; Cases, 2002; Liebermann and Sstashevsky, 2002; Forsythe and Shi, 2003). Moreover, no research so far has investigated both types of SSTs with human-based services. Researchers tend to examine human-based services with either e-services (e.g., Wontoya-Weiss et al., 2003), or machine assisted services (e.g., Dabholkar et al., 2003; Weijters et al., 2007; Wang et al., 2012; Lee and Yang, 2013, Demoulin and Djelassi, 2016). Furthermore, only very limited studies (Weijters et al., 2007; Lee and Yang, 2013) to date have investigated both SST and Non-SST users regard with perceived store service quality, satisfaction with, and loyalty to, the service provider of the SSTs.

According to the previous studies, a combination of human-based and technology based services offers the best service encounter for the customers in the retail industry (Selnes and Hansen, 2001; Parasuraman et al., 2005; Salomann et al., 2006; Reinders et al., 2008; Verhoef et al., 2009; Lee and Yang, 2013). Therefore; the aim of this research is to identify whether human-based services (i.e., staffed checkouts) while using SSTs, will still positively influence SST users' perceived store service quality, SST users' satisfaction with, and loyalty to, the store. In order to make a comparison, Non-SST users (those who only use staffed checkouts) are also investigated. Moreover, this research aims to identify what other factors besides quality of SST or of staffed checkouts influence perceived service quality, satisfaction with, and loyalty to the store among SST users and Non-SST users respectively.

## **Methodology**

To investigate the above research questions, this study adopts a questionnaire survey of supermarket shoppers in the UK. Respondents to the survey include users and Non-users of SSTs. SST users in this paper refers to users of SCMs as machine assisted services, and/or of online shopping as e-services. Non-SST users are those customers who only use human-based services such as staffed checkouts. The content of the questionnaire was drawn from survey items used in previous research. Items for customer loyalty were adopted from Zeithaml et al. (1996). Items for customer perception of store service quality and customer satisfaction with the store were adopted from Sharma et al. (2016). Quality of, and satisfaction with, each method of checkouts as well as frequency of using each method, and time length of one shopping trip were also included. Extensive pilot testing was undertaken to ensure that the questions were both comprehensible and easy to complete. The pilot sample was analysed using Partial Least Squares (PLS) and demonstrated a good level of reliability and validity of measurement items. Data collection took place in the summer of 2016. Structured face-to-face interviews were conducted with passer-by consumers in various town centres in the UK. After 4 weeks, the number of target responses (at least 300) had been achieved and interviewing therefore ceased. The sample was analysed with SPSS.

## Findings

### *Respondent profile:*

The total number of respondents was 313. The respondents were predominantly female (72%). The majority (53%) were in employment, 25% were retired, 12% were looking after home/family, and 11% were classified as other. The majority of them (56%) had an annual income of £20,000 or below, followed by 22% who earned between £20,001 and £40,000. As for the respondents' level of education 33% had a low level of education (GCSE or below in the English education system), 27% had an intermediate level of education (A-Level or Diploma), while 37% of respondents had a university first degree or higher degree. Their ages were that 22% from 29 and below, 50% from 30-59, and 28% were aged 60 and over.

### *Usage of each checkout method:*

Staffed checkouts is the most popular method of payment followed by SCMs. Only 5% of the respondents declared that they never used staffed checkouts compared to 39% revealed that they never used SCMs. Online shopping appears to be the least common method of shopping among the 3 methods as 81% of the respondents indicated they never used it.

### *Customer perceived store service quality:*

SST users' perceived store service quality was influenced by the perceived service quality of staffed checkout, gender, possession of loyalty card, and their income. Therefore, SST users who perceived high quality staffed checkout and who are in the possession of the store's loyalty card tend to perceive store service quality highly. With regard to gender, on average, female SST users perceive store service quality lower than male SST users. This could be because female shoppers tend to be more anxious about technology whereas male shoppers tend to be technological innovative (Lee et al., 2009; Lee et al., 2010). Therefore, female shoppers (although using SSTs) are not as comfortable of, or confident in, using SSTs as male SST users, and this could have resulted in the lower perceived store service quality. Moreover, income seems to have a small influence on customer perception of store service quality among SST users. Past research indicates that income determines the choice of stores; hence, customers with higher income are able to place more emphasis on pleasant shopping experience (Baltas et al., 2010). As a result, the higher the shoppers' income, the more critical they are about the store service quality.

Non-SST users' perceived store service quality was affected by their perceived service quality of staffed checkouts and gender. The relationship between customer perceived quality of staffed checkouts and customer perceived store service quality is statistically significant for both SST and Non-SST users. This implies that customers whether they are SST users or not, need good employee interaction in order to experience high store service quality since perceived service quality is often influenced by friendly, polite, helpful service staff (Mittal and Lassar, 1996). This result seems to be in consistent with previous studies which determined the effect from customer-store interaction on customers' perception of store service quality (Lee et al., 2009; Martinelli and Balboni, 2012). Gender seems to influence customer perception of store service quality differently between SST and Non-SST users. While female SST users perceive store service quality lower than male SST users (discussed above), female Non-SST users on average perceive store service quality higher than male Non-SST users. It has been identified that female customers tend to need more assistance from the store staff than male customers (Lee et al., 2013). Shoppers who use staffed checkouts are indeed provided with assistance; hence, female Non-SST users could have more appreciate staffed checkouts than male staffed checkout users, and which could have resulted in higher perceived store service quality.

#### *Customer satisfaction with the store:*

SST users' satisfaction with the store was influenced by perceived store service quality, satisfaction with staffed checkouts, and education. Non-SST users' satisfaction with the store was affected by perceived store service quality and satisfaction with staffed checkout. The relationship between customer perception of store service quality and customer satisfaction with the store is statistically significant for both SST and Non-SST users. This result is consistent with previous studies which identified the relationship between service quality and customer satisfaction (Parasuraman et al., 1988; Tsiotsou, 2006;; Martinelli and Balboni, 2012). Customer satisfaction with staffed checkouts also played an important role in customer satisfaction with the store for both SST and Non-SST users. The importance of front-line staff has long been established. Since there is not any tangible element to services, buyers tend to look for evidence or signs of service quality from employees so that the function of front-line staff is crucial in maximising customer satisfaction (Redman and Mathews, 1998). More recently, Beatson et al. (2006) identified that personal service was stronger contributor than SST experience to customer satisfaction with the service provider. Education seems to have a minor but negative influence on SST users' satisfaction with the store, wherein the more educated customer seem to be less satisfied with the store.

#### *Customer loyalty to the store:*

SST users' loyalty with the store was influenced by overall satisfaction with the store, satisfaction with staffed checkouts, frequency of using SCMs, time length for one online grocery shopping, and age. Past research indicates that customer satisfaction (Jones and Suh, 2000; Bridson et al., 2008; Esbjerg et al., 2012; Kitapci et al., 2013) or store satisfaction (Bloemer and de Ruyter, 1998; Noordhoff et al., 2004; Martinelli and Balboni, 2012) will influence customer loyalty to the company. More recent study of SST users also identified that overall customer satisfaction with the store will positively influence on their loyalty to the store (Fernandes and Pedroso, 2017). Authors above argue that customers who are satisfied with the service provider are more likely to become a loyal customer. This study seems to be in line with the previous studies, and indicates that overall satisfaction with the store had an impact on their loyalty to the store among SST users. Frequency of using SCMs and duration of online grocery shopping had impact on SST users' loyalty to the store. Research so far identified that the more often customers use SSTs, the more competent and less apprehensive they become (Beatson et al., 2007; Wang et al., 2013). When customers are more comfortable and proficient with SSTs by frequent use of SST, their shopping experience could be enhanced which will ultimately result in their loyalty to the store (Orel and Kara, 2014). Time length for one online grocery shopping was identified to positively influence customer loyalty to the store. Hence, the more often shoppers use SCMs, and the longer SST users' shop online with the store, the more loyal SST users become to the store.

Satisfaction with staffed checkouts appeared to influence SST users' loyalty to the store. It is well known that customer satisfaction as one of the prerequisites for customer loyalty (Yi, 1990; Keiningham et al., 2003; Ehigie, 2006; Kheng et al., 2010; Lovelock and Wirtz, 2011). Hence, the results may not be surprising. However, satisfaction with staffed checkouts had no influence on Non-SST users' loyalty to the store. It could imply that SST users appreciate staffed checkout more than Non-SST users. As the most of SST users (92%) in this sample use both SSTs and staffed checkouts, it is possible that they make a comparison of services provided by each checkout method. Especially, nearly 50% shoppers state that they need help when using SCMs (Arnfield, 2014), these novice shoppers might value staffed checkouts even more than when they were using only staffed checkouts. But on the other hand, as Non-

SST users had only used staffed checkouts, it is feasible that they may take them for granted, and their loyalty to the store is affected by other factors.

Non-SST users' loyalty to the store was affected by gender, perceived store service quality and age. Female customers are likely to be more loyal, relationship-oriented and socially minded than males (Ndubisi, 2006; Pan and Zinkhan, 2006). The results indicate that gender appears to play a role in Non-SST users' loyalty to the store. On average, female Non-SST users have stronger store loyalty than male Non-SST users. The relationship between customer perceived store service quality and customer loyalty to the store was statistically significant for Non-SST users. It is well known that service quality influence customer loyalty to the service provider (Parasuraman et al., 1988; Cronin and Taylor, 1992; Boulding et al., 1993; Sirohi et al., 1998; Dabholkar et al, 2000; Imrie et al, 2000; Loureiro and González, 2008). Lee et al. (2009)'s research clearly identified that store service quality was positively related to store loyalty. Therefore, the greater the customer perceived store service quality, the more loyalty the customer becomes to the store.

While the factors which affect store loyalty are quite different between SST and Non-SST users, age is identified to negatively influence on store loyalty for both SST and Non-SST users. Hence, the older the shopper is the less loyal to the store. Whereas perceived store service quality has a positive impact on store loyalty among Non-SST users, customer satisfaction with store has a positive impact on store loyalty among SST users. While some researchers argue direct link between service quality and customer loyalty (discussed above), the others advocate a mediating role of customer satisfaction between service quality and loyalty (Dabholkar et al., 2000; Akbar and Parvez, 2009; Wu, 2011). Therefore, the results suggest that, for SST users, their perceived store service quality influenced their satisfaction to the store which in turn affects their loyalty to the store, and for Non-SST users, the relationship between service quality and store loyalty is more direct.

## **Conclusion**

The number of shoppers who use SSTs, especially SCMs, is growing. However, this research has found that staffed checkouts as human-based services are still the most popular method of checkout in supermarkets in the UK. Moreover, most of SST users (in this sample) are still using staffed checkouts as well. This research indicates that perceived quality of, and satisfaction with, staffed checkouts positively influences customer perception of store service quality, and customer satisfaction with, and loyalty to, the store. Compared with staffed checkout, SSTs did not seem to have an impact on SST users. In addition, perceived quality of, and satisfaction with, staffed checkouts have a greater effect on SST users than Non-SST users. Although the provision of SSTs offers advantages for both companies and customers, the findings highlight the importance of front-line staff in order to strengthen customer perceived service quality, customer satisfaction and customer loyalty. However, the results could be influenced by the naivety of UK consumers for SSTs. Therefore, in time, more UK consumers may accept and adopt SSTs in the retail sector.

## **References**

Available upon request.